Mini-Grid Feed-in Tariffs

The AfDB Electricity Regulatory Index as a diagnostic tool for mini-grid FiT readiness, design and monetisation

Linking regulatory quality, tariff design and investment readiness
Webinar: Feed-in Tariff Mechanisms for Mini-Grid Markets and Monetisation

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1. THE QUESTION

Why mini-grid FiTs need their own conversation

A mini-grid feed-in tariff is not a smaller version of a utility-scale FiT. The site, the consumer, the contract and the risk profile are different — and the regulatory questions that decide whether investment materialises are different too.

Site economics

Mini-grid cost of service varies widely by load profile, fuel mix and distance — uniform national tariffs require a transparent subsidy.

Off-taker reality

The consumer is often the off-taker; project bankability depends on tariff certainty and credible subsidy delivery, not utility credit.

Long-horizon contracts

Concessions or licences typically run 15–25 years; main-grid arrival risk and asset-compensation rules dominate developer concerns.

Three instruments converge

Most African mini-grid frameworks blend administratively-set tariffs, cost-of-service approval and minimum-subsidy auctions. "FiT readiness" therefore means readiness for the whole architecture, not for a single instrument.

2. THE DIAGNOSTIC

What the ERI measures — and what mini-grid FiT readiness also requires

What the ERI captures

AfDB Electricity Regulatory Index (annual)

- Regulatory Governance Index — regulator independence, transparency, accountability
- Regulatory Substance Index — tariff frameworks, licensing rules, quality of service
- Regulatory Outcomes Index — cost recovery, market openness, system reliability, utility financial viability

❖ Strong proxy for the institutional risk premium investors price into the WACC.

❖ Annual cycle gives regulators a public reform anchor and peer benchmarking.

❖ Designed primarily for main-grid, single-buyer power sector regulation.

What mini-grid FiT readiness adds

Beyond the ERI

➢ A site-level cost-of-service methodology that admits per-project variation.

➢ Geospatial planning and site prioritisation

➢ A credible subsidy delivery channel — RBF, OBA, capex grants, concessional capital.

➢ Main-grid arrival rules — compensation at depreciated book value plus a fair return.

➢ Anchor-load and productive-use planning to derisk demand and revenue.

➢ Standardized, bankable concession or licence templates the lender will accept.

➢ A derisking package sized to the cost of capital — guarantees, FX hedging, liquidity.

Implication: the ERI tells you whether the regulator is fit for purpose. It does not, on its own, tell you whether a country is ready to operate a mini-grid FiT — a fuller diagnostic combines the ERI with mini-grid-specific tools (AMAP, AFUR Model, IFC SMG, UNDP DREI).

3. DESIGN

Six choices that decide whether a mini-grid FiT delivers

1 Tariff-setting method

Cost-of-service, avoided-cost or benchmarked. Mini-grid cost of service is highly site-specific; benchmarks must be re-set as PV and battery costs fall.

2 Currency, indexation, subsidy

Hard-currency tariffs reduce investor FX risk but burden customers; results-based subsidies and capex grants bridge the affordability gap.

3 Concession or licence term

Typically 15–25 years. Short terms compress recovery and raise tariffs; long terms increase main-grid-arrival exposure. Standardised, bankable templates are essential.

4 Eligibility and allocation

Programme caps, capacity thresholds (often ≤ 1 MW), site-by-site competitive allocation versus first-come; technology and locational eligibility.

5 Grid arrival and compensation

What happens when the national grid reaches a mini-grid site — interconnect, transfer, or exit.

6 Off-taker and subsidy support

When consumers are the off-taker, fiscal credibility of the subsidy line becomes binding. Guarantees, escrow and liquidity facilities still apply where utilities buy excess output.

4. PREREQUISITES

What must be in place before the tariff is set

Investors react to the credibility of the system more than to the level of the tariff itself. The ERI scores most of these institutional prerequisites; mini-grid-specific tools complete the rest.

✓ Political and fiscal commitment

A ring-fenced subsidy line, long term visibility of subsidy programs, currency-risk stance and irrevocable contract terms over the concession period.

✓ Geospatial least-cost plan

A national plan designating mini-grid versus grid-extension zones, integrated with the IRP and updated regularly.

✓ Bankable concession or licence

Standardised, non-negotiable templates — AFUR Model Mini-Grid Regulations Tool, IFC Scaling Mini-Grid templates.

✓ Cost-of-service methodology

A tariff methodology accessible to regulators that admits site-level data and provides for periodic review.

✓ Transparent allocation rules

Published eligibility, evaluation criteria and timelines; competitive minimum-subsidy or rules-based site allocation.

✓ Capable regulator and REA

An ERI-strong regulator and a rural electrification agency able to contract, monitor, pay subsidies and adjudicate.

5. STRENGTHS OF THE ERI

What the index tells you about FiT readiness

Investor confidence proxy

The ERI proxies the institutional risk premium investors price into the WACC — the single largest driver of the levelised cost of a mini-grid FiT.

Cross-country comparability

Country-by-country, year-on-year benchmarking lets regulators triangulate against peers and identify the direction of reform travel.

Tariff framework signal

The Regulatory Substance Index captures whether a tariff methodology, including the principle of cost reflectivity, exists in law and is being applied.

Licensing maturity

The ERI captures whether licensing rules are predictable, published and time-bound — closely correlated with the quality of mini-grid licensing.

Outcome data

The Regulatory Outcomes Index tracks cost recovery and quality of supply — the two pillars on which any FiT, including a mini-grid FiT, ultimately stands.
While Utility viability is important, it becomes relevant in assessing grid arrival integration

Reform anchor

The annual reporting cycle gives regulators a public, repeated commitment device for staged reform — a useful platform for sequencing mini-grid FiT improvements.

6. WHAT THE ERI DOES NOT MEASURE

Additional dimensions outside the ERI scope

Site-level cost-of-service

Assess availability of mini-grid cost data. Per-site evidence is essential for credible cost-reflective tariffs.

Subsidy delivery infrastructure

Assess availability of Results-based finance, capex grants and concessional capital Affordability gap closure depends on these instruments working.

Main-grid arrival rules

The existence or fairness of asset-compensation rules when the national grid reaches a mini-grid site — a binding bankability constraint.

Anchor-load and demand planning

Measure productive-use planning, health-facility anchor models (HETA) or demand stimulation

Concession bankability

Assess whether standardised, bankable concession templates exist — the AFUR Model Tool and IFC Scaling Mini-Grid templates fill this gap.

Risk-derisking instruments

Review of partial-risk guarantees, FX-hedging facilities or liquidity support — UNDP DREI is the diagnostic for these.

What recent mini-grid programmes tell us

Country	Approach	Key lesson
Nigeria	Site-level tariff approval within MYTO principles; performance-based grants via the Nigeria Electrification Project	*Cost-reflective per-site tariffs work where the subsidy line is credible; main-grid arrival risk remains the binding investor concern*
Tanzania	Standardised small power producer tariffs; avoided-cost benchmarking; local-currency denomination	*Local-currency, avoided-cost tariffs support small projects; uptake limited by off-taker risk and weak demand*
Sierra Leone	Subsidy-led concession model across multiple sites; harmonised tariff across the programme	*Subsidy delivery and standardised concession templates were decisive; tariff harmonisation simplified rollout*
Kenya	Mini-grid licensing rules clarified; performance-based grants and geospatial planning under KOSAP	*Geospatial planning plus ring-fenced subsidies is the binding constraint; tariff approval needs to be predictable*
Senegal	Concession-based rural electrification programme; competitive minimum-subsidy allocation	*Competitive minimum-subsidy auctions deliver lower public cost per connection than first-come*
Madagascar / Togo / others	Emerging frameworks with concession or licensing regimes; donor support via Mission 300 and DARES	*Programme scale-up depends on tariff predictability, FX-aware financing and credible main-grid-arrival rules*

Common pattern: countries that scaled mini-grid investment under FiT-like frameworks combined ERI-strong regulators with bankable concessions, predictable subsidies and clear main-grid-arrival rules.

Emerging Trends in African Mini-Grid Regulation

1. Shift from isolated → interconnected mini-grids (Nigeria)
2. Increasing use of minimum-subsidy auctions (Senegal, Sierra Leone)
3. Stronger focus on productive-use demand stimulation (anchor loads, agriculture, health)
4. Integration with Mission 300 and national electrification compacts

8. SUCCESS FACTORS

What makes a mini-grid FiT actually deliver

1. A strong regulator — independence, published tariff methodology, predictable licensing — providing the institutional foundation on which the FiT stands.

2. Geospatial least-cost plan with formally designated mini-grid zones, integrated with the IRP and updated regularly to reflect cost movements.

3. Bankable, standardised concession or licence — AFUR Model Mini-Grid Regulations Tool, IFC Scaling Mini-Grid templates — on terms acceptable to lenders.

4. Cost-reflective tariff plus a fiscally credible subsidy delivery mechanism — results-based finance, output-based aid or capex grants.

5. Clear main-grid arrival rules — asset transfer at depreciated book value plus a fair return; interconnection options where economically rational.

6. Anchor-load and productive-use co-planning — health facilities (HETA), agriculture, water — to derisk demand and underwrite revenue.

7. A risk-derisking package (UNDP DREI) — partial-risk guarantees, FX hedging, liquidity support — sized to the cost of capital, not as an afterthought.

8. Continuous regulator-developer-financier dialogue — on tariff reviews, subsidy continuity, reporting standards and grid-arrival adjudication.